

# SEQUENCE LISTING

<110> Ebner, Reinhard  
Ruben, Steven

<120> Interleukins-21 and 22

<130> PF470P1

<150> 60/169,837

<151> 1999-12-09

<150> 09/320,713

<151> 1999-05-27

<150> 60/087,340

<151> 1998-05-29

<150> 60/099,805

<151> 1998-09-10

<150> 60/131,965

<151> 1999-04-30

<150> PCT US99/11644

<151> 1999-05-27

<160> 32

<170> PatentIn version 3.0

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gcc gag tgc ctg tgc aga ggc tgt atc gat gca cgg acg ggc cgc gag 97
Ala Glu Cys Leu Cys Arg Gly Cys Ile Asp Ala Arg Thr Gly Arg Glu
20 25 30

aca gct gcg ctc aac tcc gtg cgg ctg ctc cag agc ctg ctg gtg ctg 145
Thr Ala Ala Leu Asn Ser Val Arg Leu Leu Gln Ser Leu Leu Val Leu
35 40 45

cgc cgc cgg ccc tgc tcc cgc gac ggc tcg ggg ctc ccc aca cct ggg 193
Arg Arg Arg Pro Cys Ser Arg Asp Gly Ser Gly Leu Pro Thr Pro Gly
50 55 60

gcc ttt gcc ttc cac acc gag ttc atc cac gtc ccc gtc ggc tgc acc 241
Ala Phe Ala Phe His Thr Glu Phe Ile His Val Pro Val Gly Cys Thr
65 70 75 80

tgc gtg ctg ccc cgt tca gtg tgaccgccaa ggccgtgggg cccttagact 292
Cys Val Leu Pro Arg Ser Val
85

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 cctcccccaa cactaccctt ggggtctggg cattccccgt gtctggagga cagccccca 412  
 ctgttctcct catctccagc ctccagtagtt ggggggtwaa ggagctcagc acctctteca 472  
 gcccttaaaag ctgcagaaaa ggtgtcacac ggetgectgt accttgggyc cctgtectgc 532  
 tcccggtctt ccttacccta tcactggcct caggcccccg caggetgect cttcccaacc 592  
 tccttggaag tacccctgtt tcttaacaaa ttatttaagt gtacgtgtat tattaactg 652  
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Ala Glu Cys Leu Cys Arg Gly Cys Ile Asp Ala Arg Thr Gly Arg Glu  
 20 25 30

Thr Ala Ala Leu Asn Ser Val Arg Leu Leu Gln Ser Leu Leu Val Leu  
 35 40 45

Arg Arg Arg Pro Cys Ser Arg Asp Gly Ser Gly Leu Pro Thr Pro Gly  
 50 55 60

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Cys Val Leu Pro Arg Ser Val  
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 1 5 10 15

ctg cag ctg ggg ccg cgt gag cag gcg cgc aac gcg agc tgc ccg gca 95  
 Leu Gln Leu Gly Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala  
 20 25 30

[illegible]

000001-01011226

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ggcttctgtt tctgcattct gccacgagag ctaggtcctt gatcttttct ttagattgaa 1552
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20 25 30

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Gly Arg Pro Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser
35 40 45

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Val Ser Pro Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro
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Arg Tyr Leu Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly
65 70 75 80

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Leu Phe Gly Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met
85 90 95

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Pro Thr Val Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser
100 105 110

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Val Tyr Thr Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val
115 120 125

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Pro Glu Pro Glu Lys Asp Ala Asp Ser Ile Asn Ser Ser Ile Asp Lys
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09/15 in the Air

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Page 5

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20 25 30

Leu Ala Ala Asn Asn Ser Phe Pro Arg Ser Val Met Val Thr Leu Ser  
35 40 45

Ile Arg Asn Trp Asn Thr Ser Ser Lys Arg Ala Ser Asp Tyr Tyr Asn  
50 55 60

Arg Ser Thr Ser Pro Trp Thr Leu His Arg Asn Glu Asp Gln Asp Arg  
65 70 75 80

Tyr Pro Ser Val Ile Trp Glu Ala Lys Cys Arg Tyr Leu Gly Cys Val  
85 90 95

Asn Ala Asp Gly Asn Val Asp Tyr His Met Asn Ser Val Pro Ile Gln  
100 105 110

Gln Glu Ile Leu Val Val Arg Lys Gly His Gln Pro Cys Pro Asn Ser  
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130 135 140

Pro Ile Val His Asn Val Asp  
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Leu Gly Leu Gly Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys Gly Gln  
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Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln Val Pro Leu Asp  
35 40 45

Leu Val Ser Arg Met Lys Pro Tyr Ala Arg Met Glu Glu Tyr Glu Arg  
50 55 60

Asn Ile Glu Glu Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala  
65 70 75 80



to preserve the reading frame, and 16 nucleotides of the sequence of the complete IL-21 protein.

<400> 11  
cgccgcggat ccgccatccg cagcagtgga caccg

35

<210> 12  
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<222> (1)..(29)  
<223> 3' primer containing an Asp718 restriction site, and 20 nucleotides complementary to the 3' noncoding sequence of IL-21.

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29

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<211> 733  
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aattcagggg tgcaccgtca gtcttctctt tccccccaaa acccaaggac accctcatga 120  
tctcccgagc tcttgaggtc acatgcgtgg tgggtggagc aagccacgaa gacctgagg 180  
tcaagttcaa ctggtacgtg gacggcggtg aggtgcataa tgccaagaca aagccgcggg 240  
aggagcagta caacagcagc taccgtgtgg tcagcgtcct caccgtcctg caccaggact 300  
ggctgaatgg caaggagtac aagtgcgaag tctccaacaa agccctccca acccccatcg 360  
agaaaaacct ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc 420  
catcccgagg tgagctgacc aagaaccagg tcagcctgac ctgcctgggt aaaggcttct 480  
atccaagcga catcgccgtg gagtgggaga gcaatgggca gccggagaa aactacaaga 540  
ccagcctcc cgtgtgggac tccgacggct ctttcttct ctacagcaag ctcaccgtgg 600  
acaagagcag gtggcagcag gggaaactct tctcatgctc cgtgatgcat gaggtctctc 660  
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Trp Ser Xaa Trp Ser  
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 <222> (1)..(27)  
 <223> 3' primer containing a complementary sequence to SV40 promoter and flanked with an Hin dIII site.

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 gccctaactc ccgccagttt ccgccatttc tccgccccat ggctgactaa ttttttttat 180  
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 ttttgagggc ctaggctttt gcaaaaaagct t 271

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60

73

<210> 22

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SV40 promotor and flanked by an HindIII restriction site.

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cagttccgcc cattctccgc cccatggctg actaattttt tttattatg cagaggccga 180
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gtttgaaaa gttcacggng getccctgag gacctgcgag aatcgggctg ctgcgggtgc 120

aaggcgtgga ctcaccgctg ggtgcttgcc aaanaggata gggacgcata tgctttttaa 180

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agcaatctaa aaataataat aagtatagcg actatatacc tacttttaaa atcaactgtt      240
ttgaatagag gcagagctta ttttatatta tccaaatgag agctactctg ttnacatttt      300
ctttaaacat tttaaacatn gnttttttna cttcttntcg ggtnggattt tttttaaagg      360
cntaattggg a                                                                371

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 ctgccccggg aggtctcccc ggncccgcat cccgaggcgc ccaagctgga gccgcctgga 180  
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 tgtnttnggg gccntntgga gggttttgga aaatttnagg gggtttctgn gggtttttta 420  
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053163 JEBB, M. *Journal of the Royal Society of Medicine*, 1976, 69, 10, 613-614.

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053163 JEBB, M. *Journal of the Royal Society of Medicine*, 1976, 69, 10, 613-614.

053163 JEB

09731515-120600

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gggcttcggt ccggcgaacc tctgaaagag aagtgccacc gagcaaacca agtgccggtg 180
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Leu Phe Leu Thr Trp Leu His Thr Cys Leu Ala His His Asp Pro Ser
10 15 20

ctc agg ggg cac ccc cac agt cac ggt acc cca cac tgc tac tcg gct 150
Leu Arg Gly His Pro His Ser His Gly Thr Pro His Cys Tyr Ser Ala
25 30 35

gag gaa ctg ccc ctc ggc cag gcc ccc cca cac ctg ctg gct cga ggt 198
Glu Glu Leu Pro Leu Gly Gln Ala Pro Pro His Leu Leu Ala Arg Gly
40 45 50 55

gcc aag tgg ggg cag gct ttg cct gta gcc ctg gtg tcc agc ctg gag 246
Ala Lys Trp Gly Gln Ala Leu Pro Val Ala Leu Val Ser Ser Leu Glu
60 65 70

gca gca agc cac agg ggg agg cac gag agg ccc tca gct acg acc cag 294
Ala Ala Ser His Arg Gly Arg His Glu Arg Pro Ser Ala Thr Thr Gln
75 80 85

tgc ccg gtg ctg cgg ccg gag gag gtg ttg gag gca gac acc cac cag 342
Cys Pro Val Leu Arg Pro Glu Glu Val Leu Glu Ala Asp Thr His Gln
90 95 100

cgc tcc atc tca ccc tgg aga tac cgg gtg gac acg gat gag gac cgc 390
Arg Ser Ile Ser Pro Trp Arg Tyr Arg Val Asp Thr Asp Glu Asp Arg
105 110 115

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Tyr Pro Gln Lys Leu Ala Phe Ala Glu Cys Leu Cys Arg Gly Cys Ile
120 125 130 135

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Asp Ala Arg Thr Gly Arg Glu Thr Ala Ala Leu Asn Ser Val Arg Leu
140 145 150

ctc cag agc ctg ctg gtg ctg cgc cgc cgg ccc tgc tcc cgc gac ggc 534
Leu Gln Ser Leu Leu Val Leu Arg Arg Arg Pro Cys Ser Arg Asp Gly
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Pro His Leu Leu Ala Arg Gly Ala Lys Trp Gly Gln Ala Leu Pro Val
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Ala Leu Val Ser Ser Leu Glu Ala Ala Ser His Arg Gly Arg His Glu
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Arg Pro Ser Ala Thr Thr Gln Cys Pro Val Leu Arg Pro Glu Glu Val
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Leu Glu Ala Asp Thr His Gln Arg Ser Ile Ser Pro Trp Arg Tyr Arg
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Val Asp Thr Asp Glu Asp Arg Tyr Pro Gln Lys Leu Ala Phe Ala Glu
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Cys Leu Cys Arg Gly Cys Ile Asp Ala Arg Thr Gly Arg Glu Thr Ala
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Ala Leu Asn Ser Val Arg Leu Leu Gln Ser Leu Leu Val Leu Arg Arg  
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Arg Pro Cys Ser Arg Asp Gly Ser Gly Leu Pro Thr Pro Gly Ala Phe  
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 Pro Arg Glu Gln Ala Arg Asn Ala Ser Cys Pro Ala Gly Gly Arg Pro  
 35 40 45  
 gcc gac cgc cgc ttc ccg ccg ccc acc aac ctg cgc agc gtg tgc ccc 192  
 Ala Asp Arg Arg Phe Arg Pro Pro Thr Asn Leu Arg Ser Val Ser Pro  
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 Trp Ala Tyr Arg Ile Ser Tyr Asp Pro Ala Arg Tyr Pro Arg Tyr Leu  
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 Pro Glu Ala Tyr Cys Leu Cys Arg Gly Cys Leu Thr Gly Leu Phe Gly  
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 Glu Glu Asp Val Arg Phe Arg Ser Ala Pro Val Tyr Met Pro Thr Val  
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 Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr  
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Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro  
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 Val Leu Arg Arg Thr Pro Ala Cys Ala Gly Gly Arg Ser Val Tyr Thr  
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 Glu Ala Tyr Val Thr Ile Pro Val Gly Cys Thr Cys Val Pro Glu Pro  
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